

FIG. 1

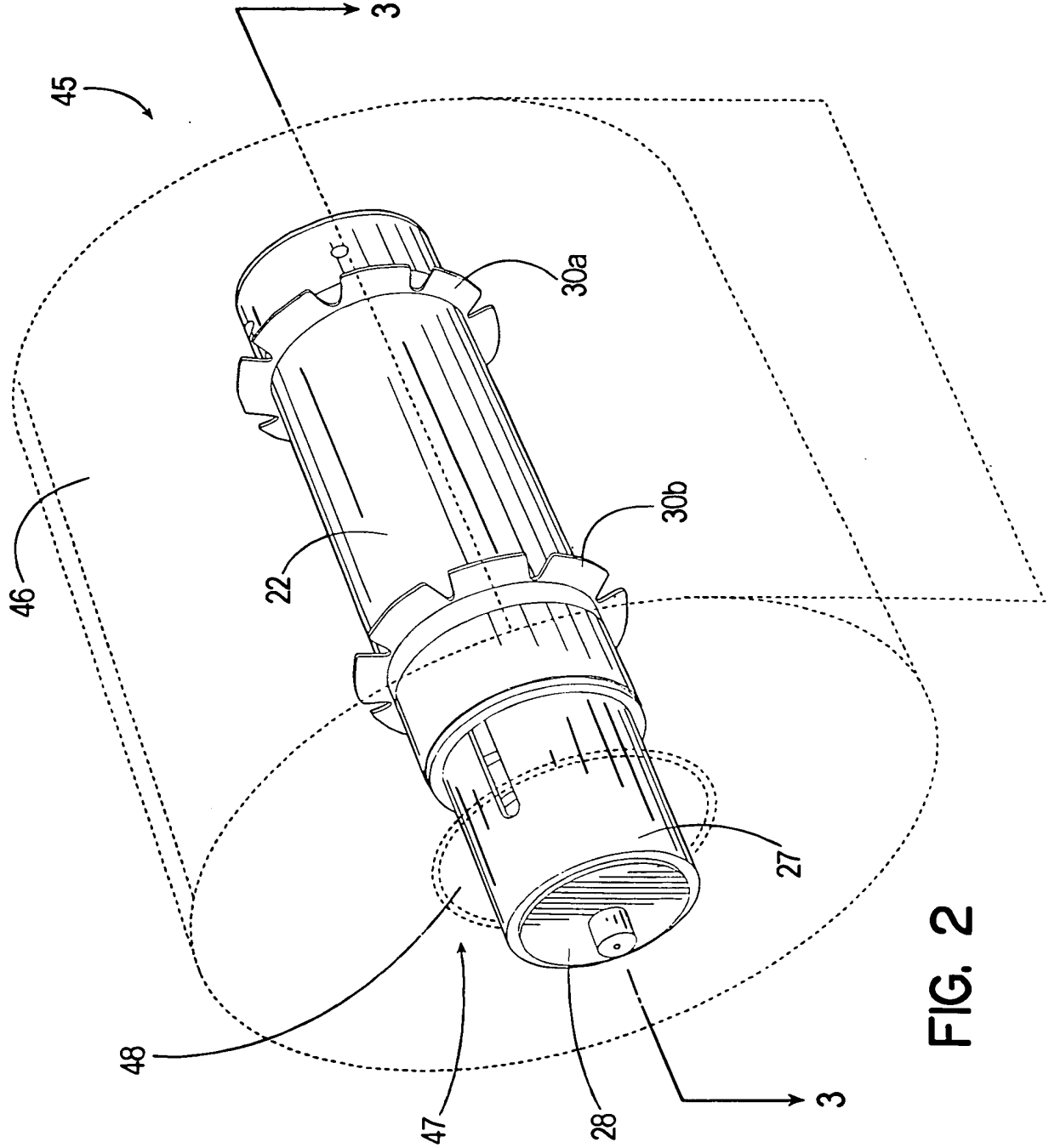


FIG. 2

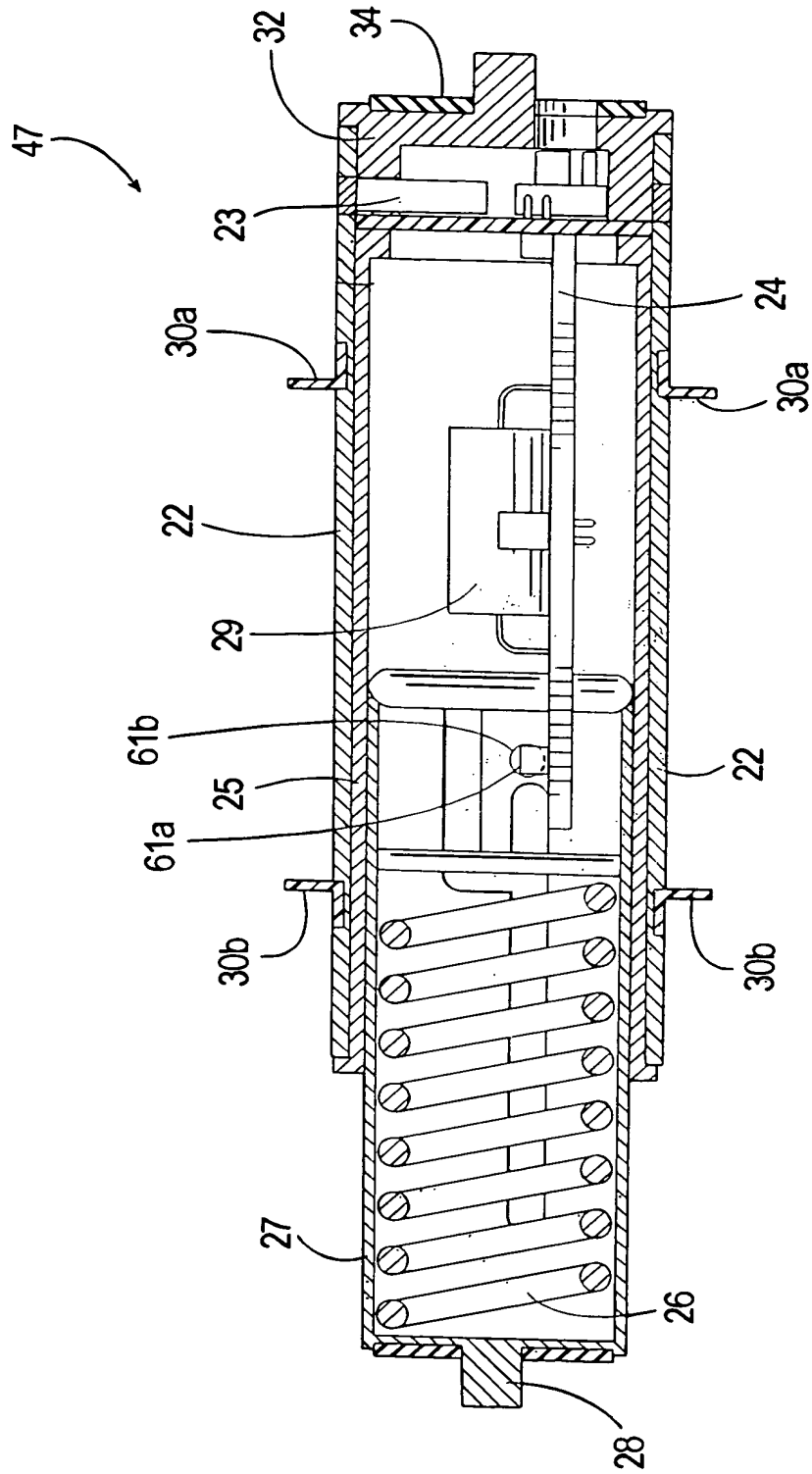


FIG. 3

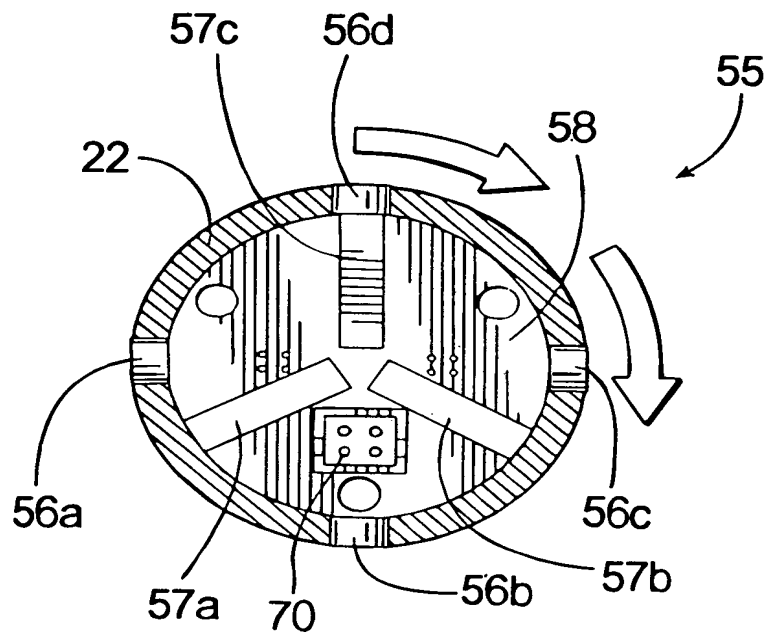
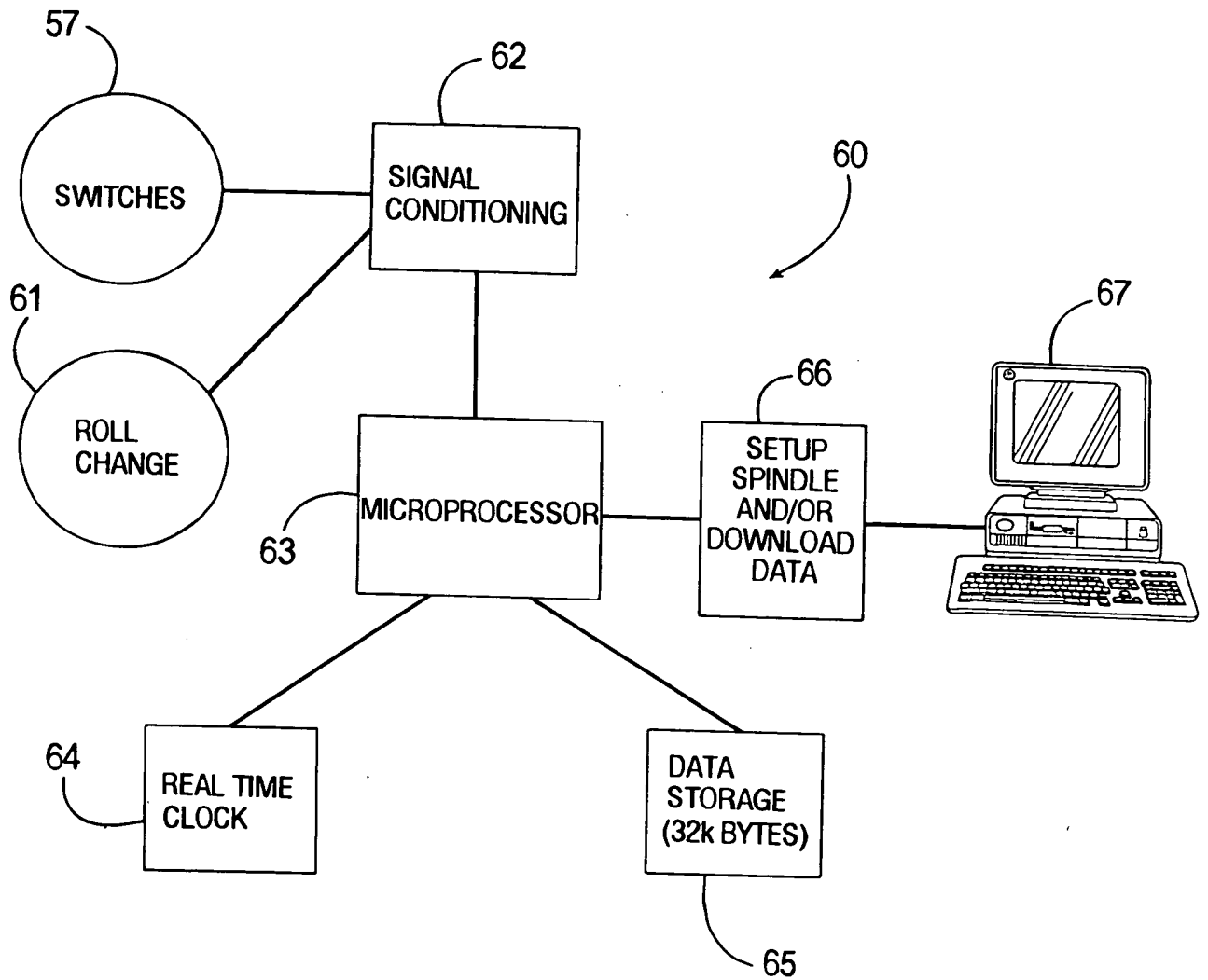


FIG. 4

**FIG. 5**

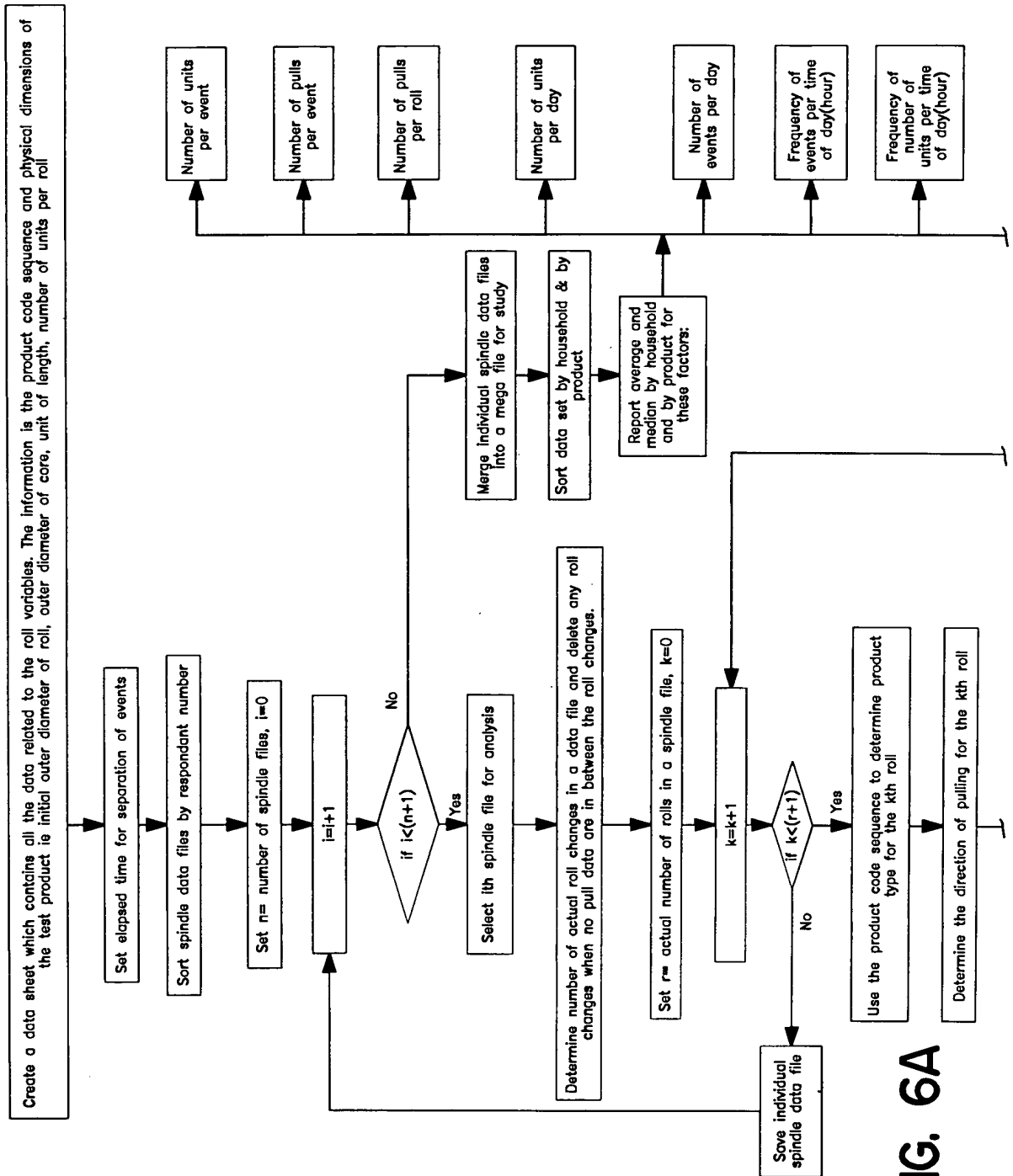


FIG. 6A

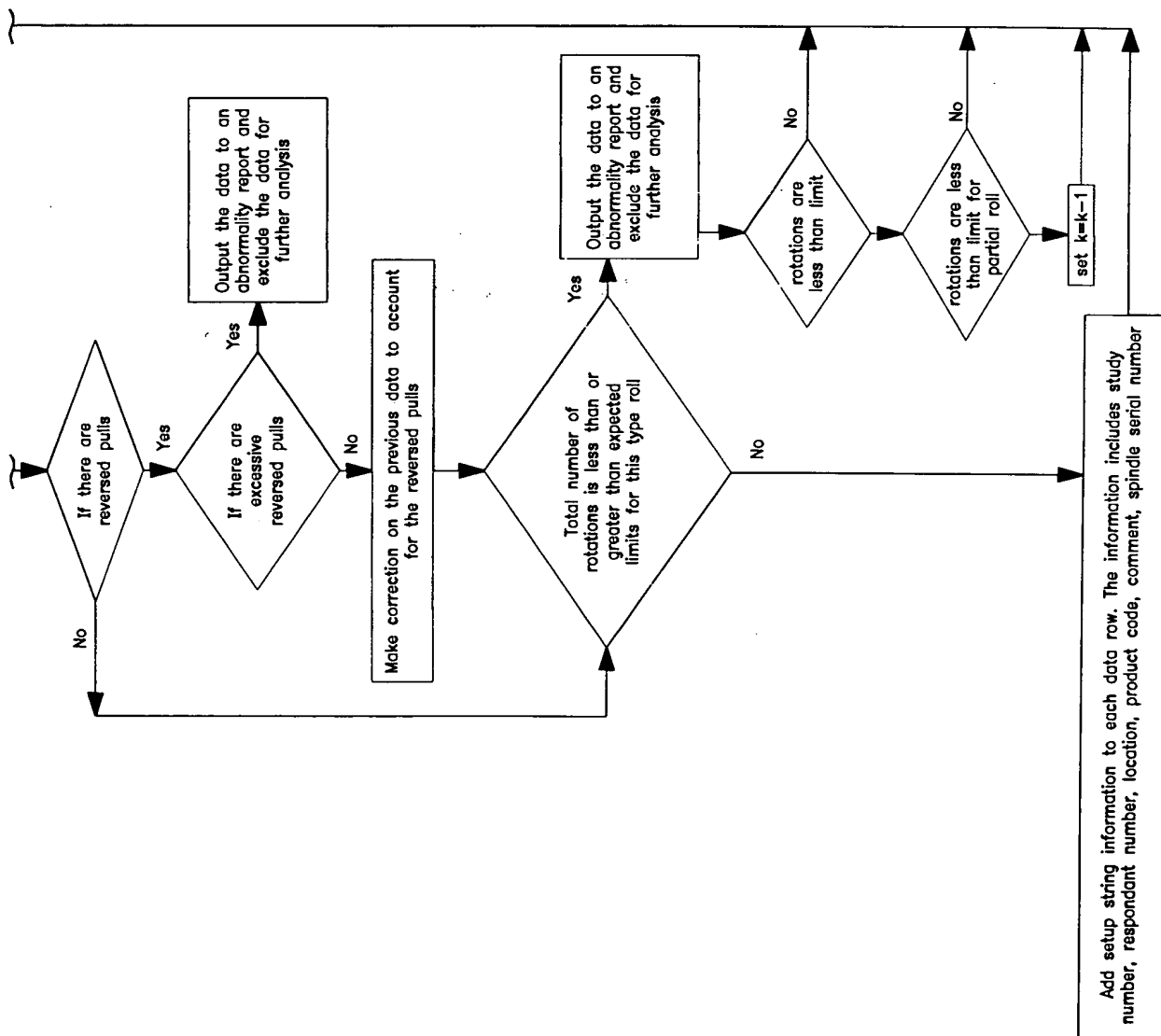
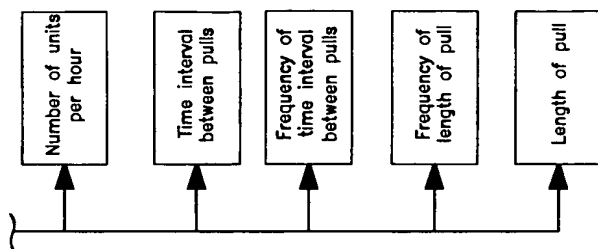


FIG. 6B

Use of Smart Spindle for toilet paper utility in Consumer Home

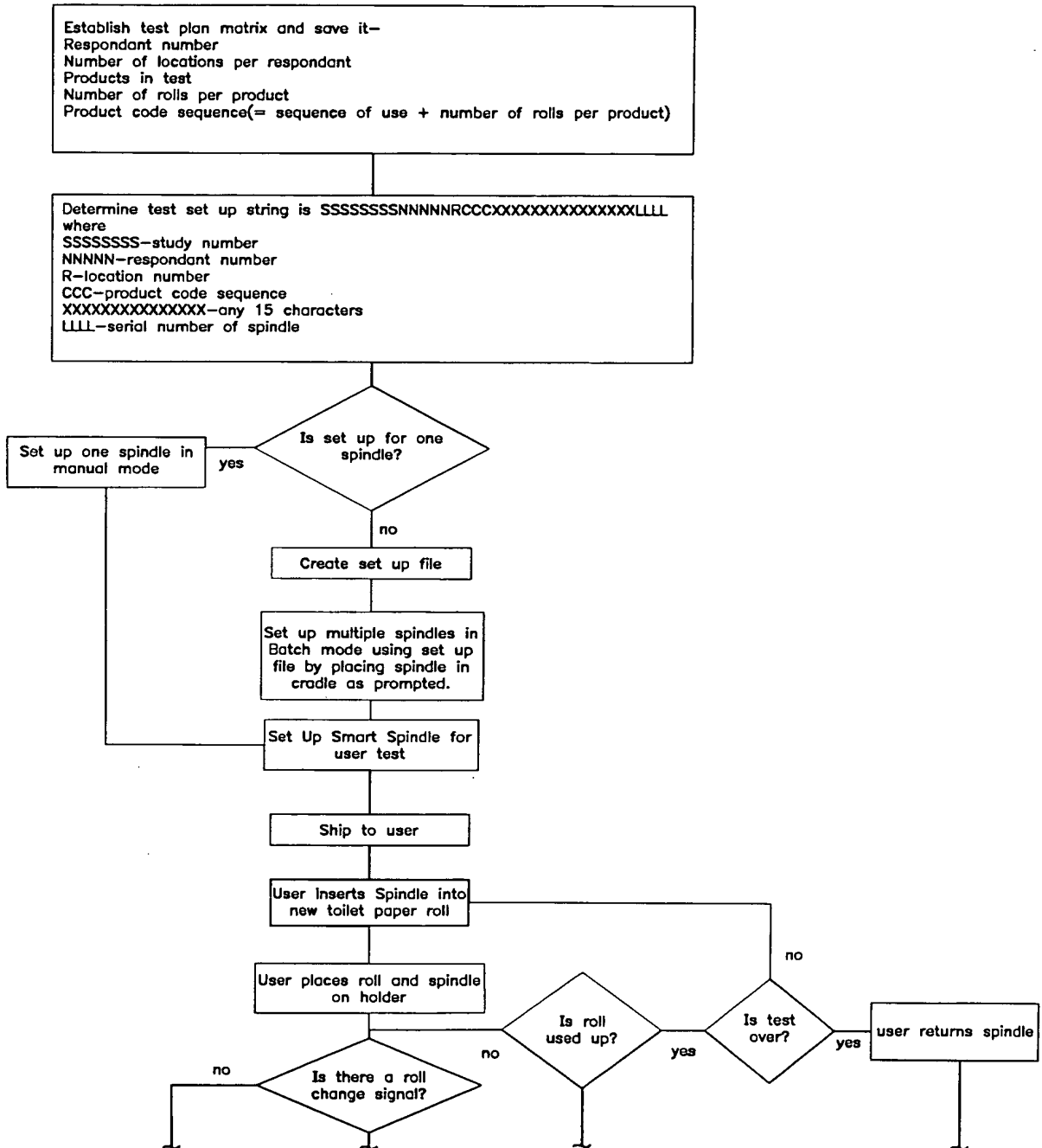


FIG. 7A

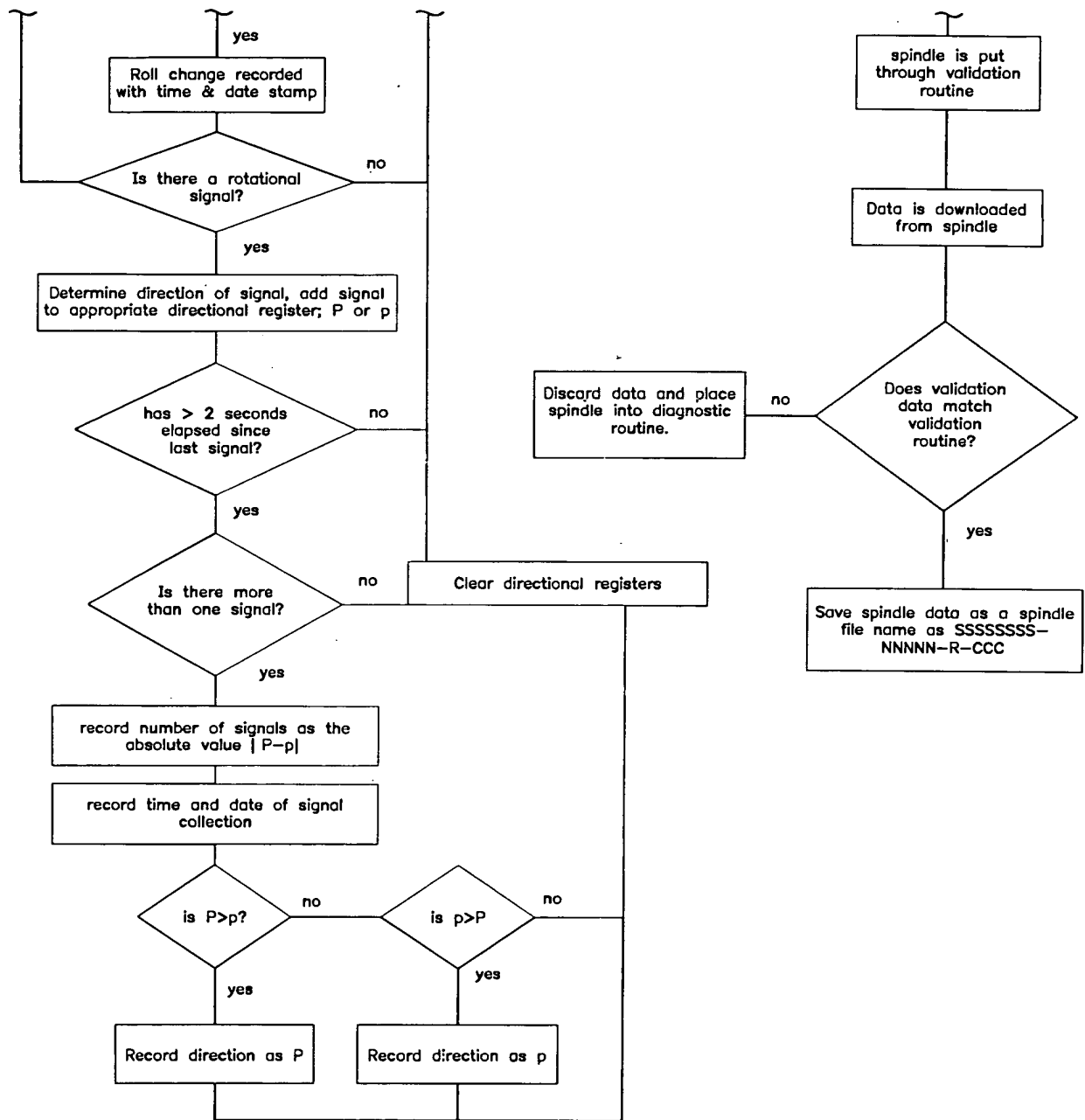


FIG. 7B

Use of Smart Spindle to control an inventory in Consumer Home, retailstore

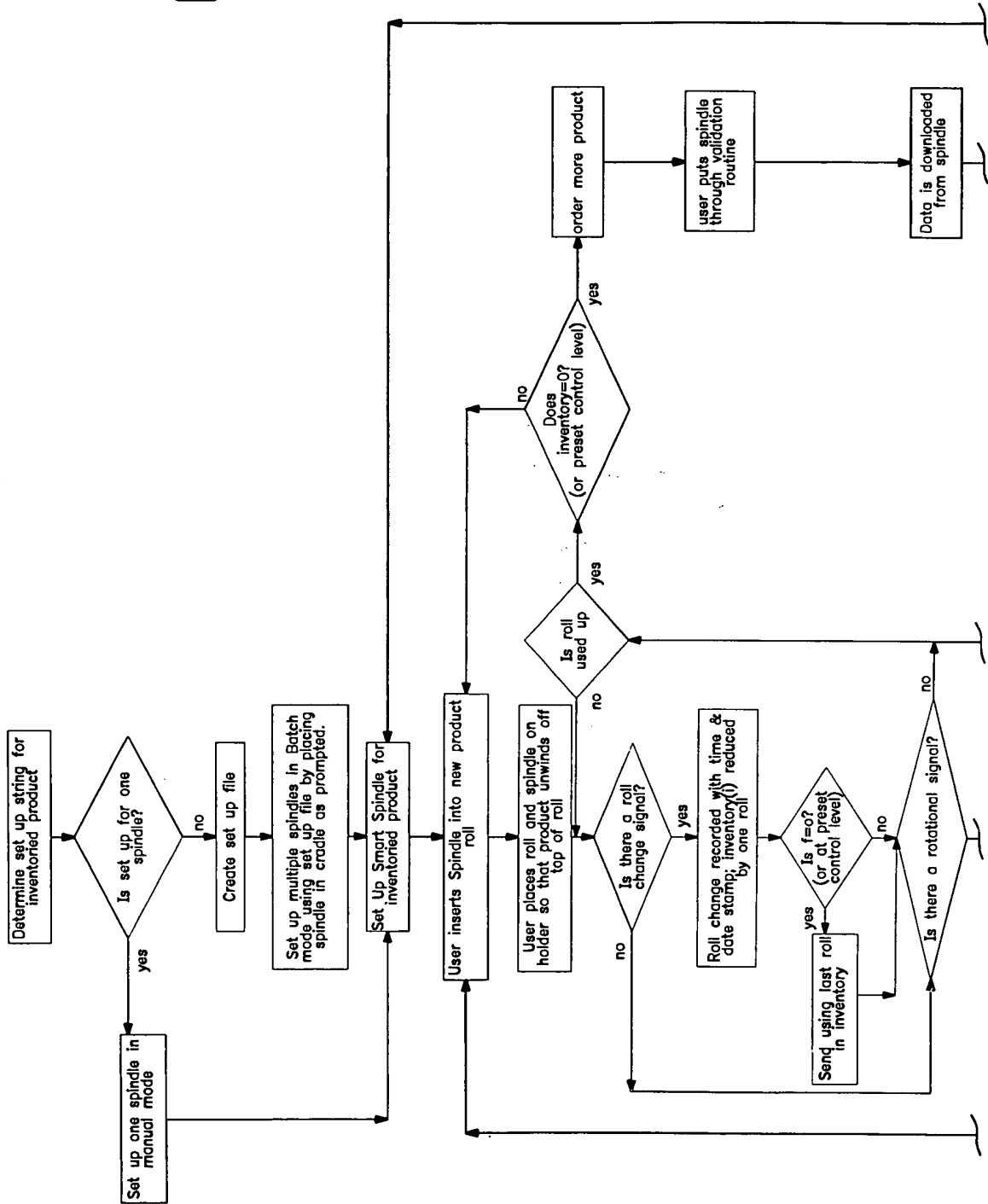


FIG. 8A

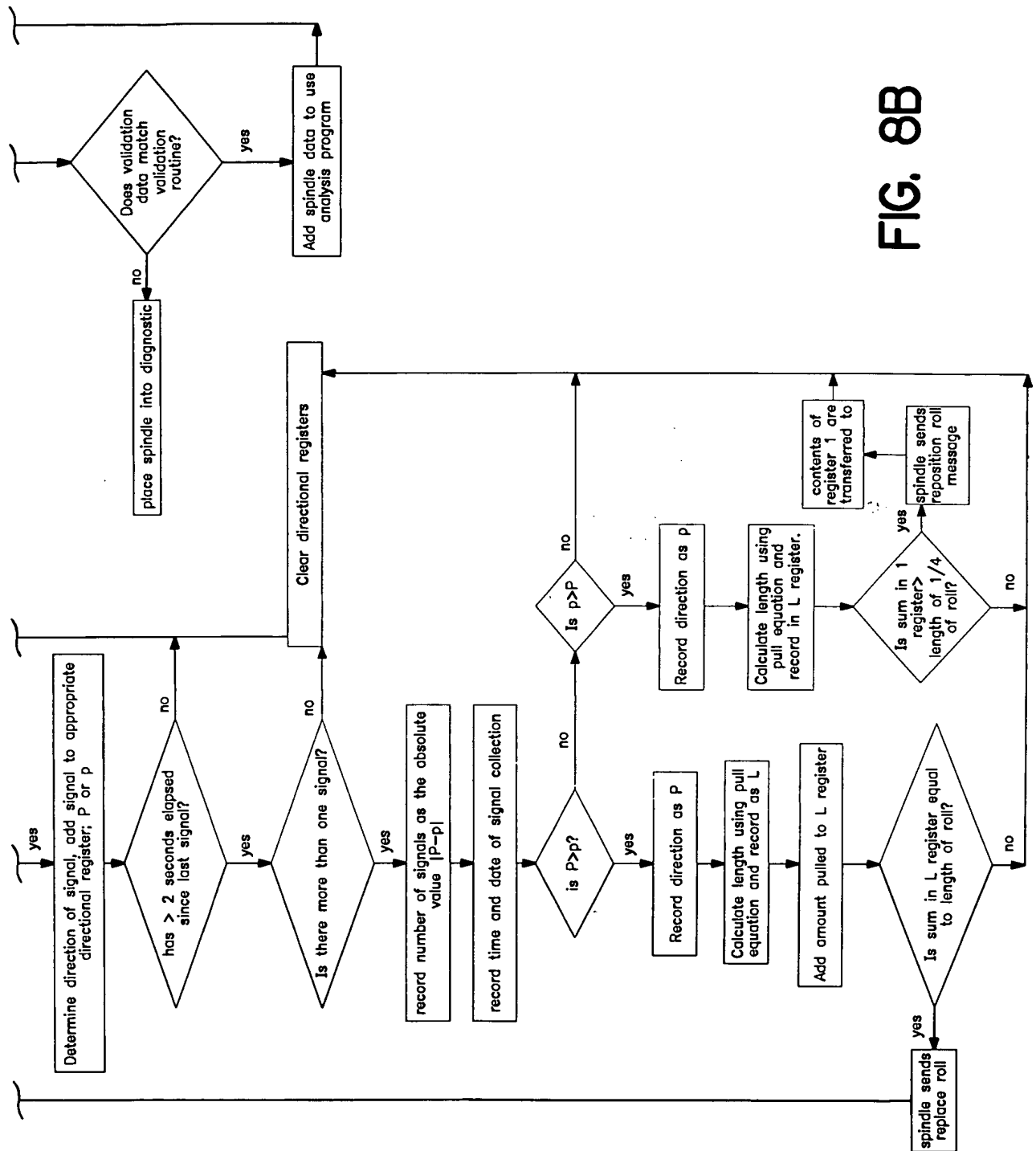


FIG. 8B

☐ Spindle Manager

File Help

Setup Collect

File Setup

Setup File **Change**

Spindle ID

Start **Skip** **Continue** **Abort**

☐ Always Setup

Manual Setup

Spindle ID **Setup**

		0	Not downloaded	1:01:
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FIG. 9

Microsoft Excel-SS-02.xls

File Edit View Insert Format Tools Data Window Help

100%

Test Setup

	A	B		I	J
1		Employee			
2	R	110500	1		
3	P	110500	1		
4	P	110500	2		
5	P	110600			
6	P	110600			
7	P	110600			
8	P	110600			
9	P	110600			
10	P	110600			
11	P	110600	2		
12	P	110700			
13	P	110700			
14	P	110700			
15	P	110700			
16	P	110700			
17	P	110700			
18	P	110700	114848		
19	P	110700	203518		
20	P	110800	11226		
21	P	110800	11236		

Ready

Start Inbox-Microsoft Outlook Microsoft Word-SS-PR... Microsoft Excel 1,... 1:07 PM

NUM

Refresh

OK

Study #

Subject #

Bathroom #

Product ID

Spindle ID

Criterion for visits(min)

Employee

1

1

ASK

1

3.0

OK

I, bath I-AS-0

FIG. 10

☐ Spindle Manager

File Help

Setup Collect

Batch Collect

Start

Directory

C:\Ms Td\MSG\Smart Spindle\Spindle

Change

Finish

Spindle ID

☐ Over-write Files

Single Collect

Collect

View

Save

		0	Not downloaded	1:09:
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FIG. 11

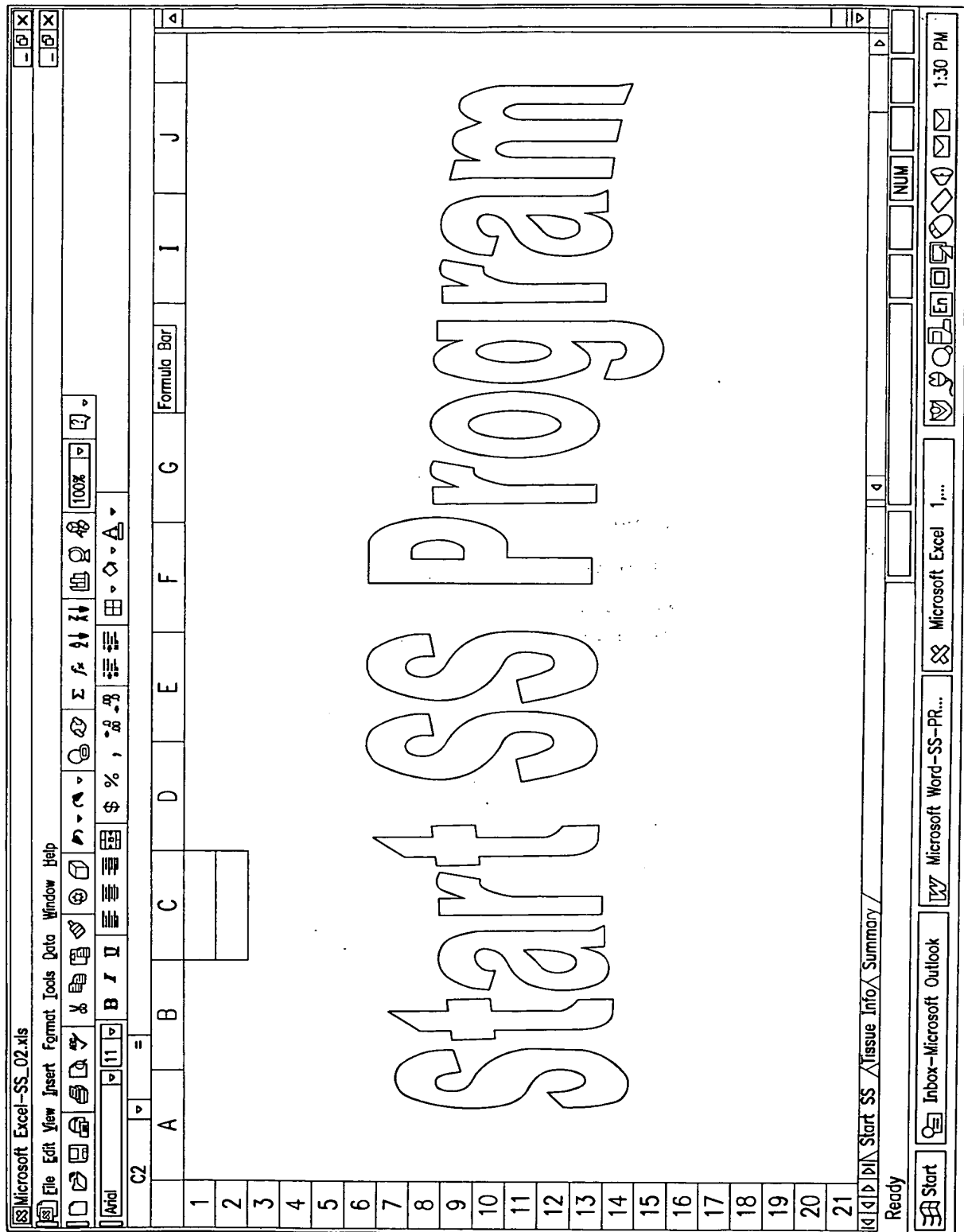


FIG. 12

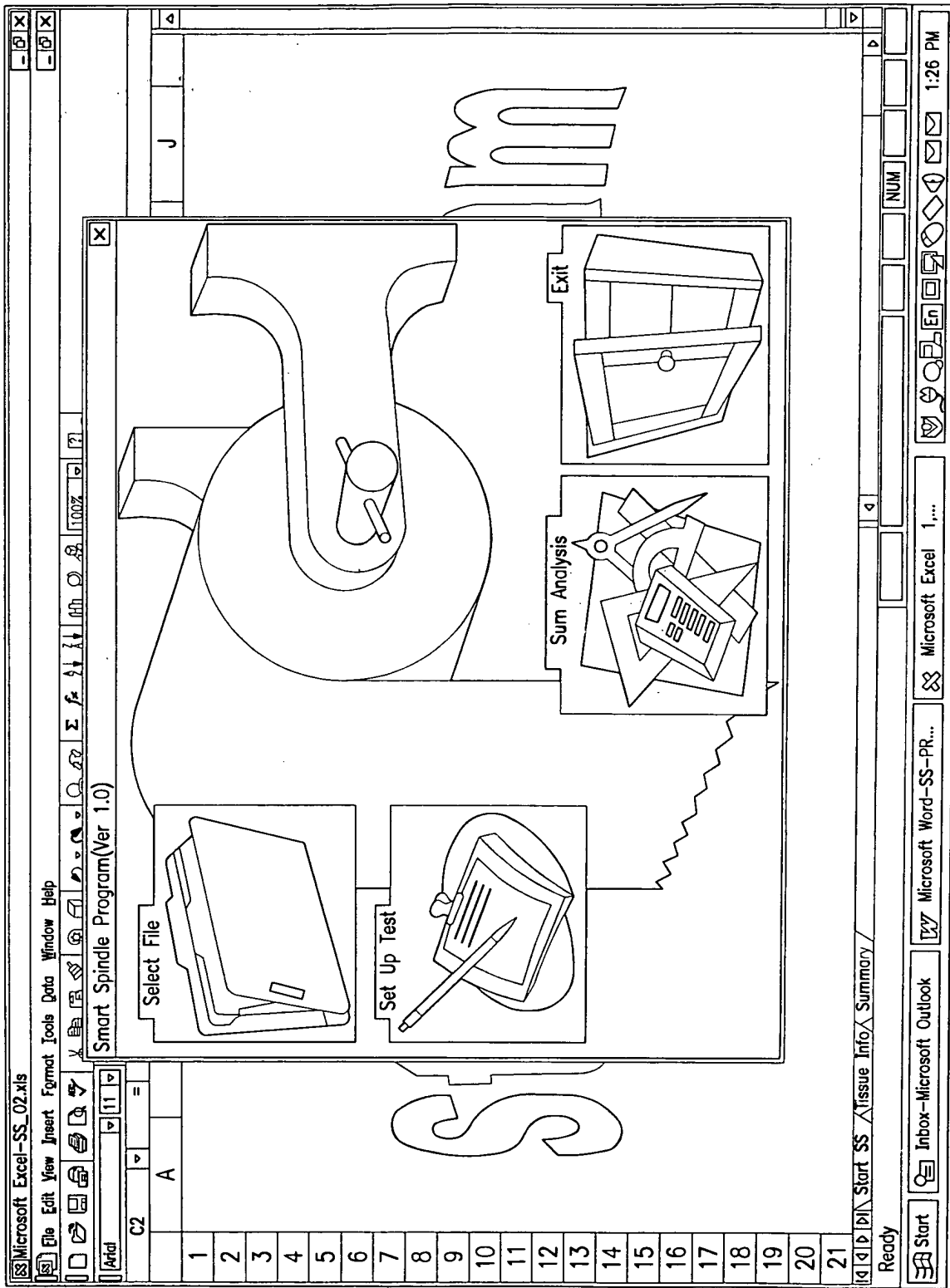


FIG. 13